

THE JACKPINE MINE **EXPANSION**



JACKPINE MINE AREA

Shell Canada is proud to be a part of Canada's oil sands. In less than a decade the **Athabasca Oil Sands Project (AOSP)*** has built a mining operation capable of producing over a quarter of a million barrels of oil a day, equivalent to **providing 17% of Canada's demand for oil**. The Jackpine Mine Expansion is central to Shell's long term vision for oil sands development. The proposed 100,000 barrel per day expansion would allow Shell to fully integrate adjacent leases into our current mine plan and allow for the **most integrated and effective long term plans**, both from an environmental and economic perspective. Since the beginning of operations, the AOSP has invested over **\$20 billion in capital investment** and billions each year in ongoing operations and maintenance costs. Albian has more than **2,700 staff a year on-site** and provides a further **4,600 jobs in Alberta among project suppliers** and in the general economy. The proposed Expansion project will provide further value through royalties, taxes and employment for Canadians well into the future.

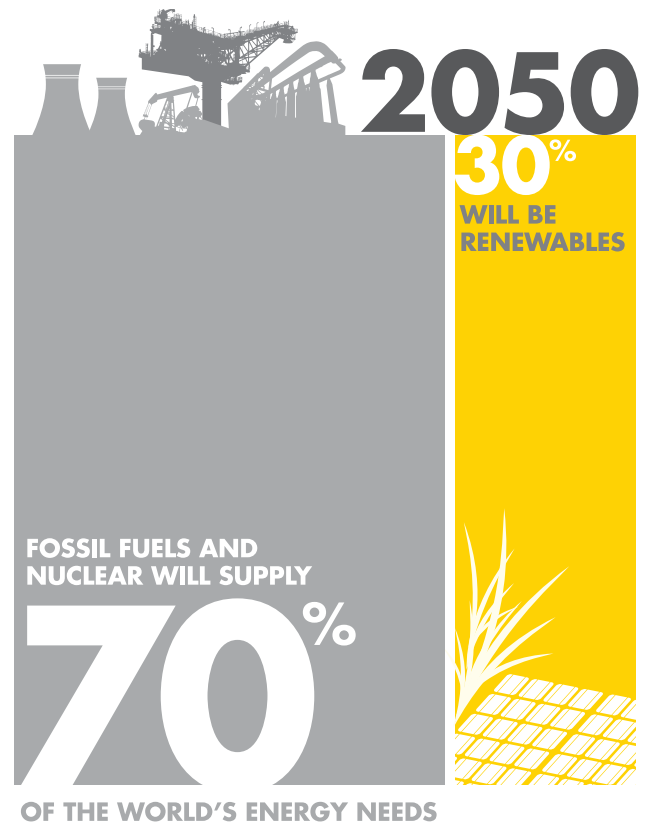
* Shell is the operator and majority share holder of the Athabasca Oil Sands Project, a joint venture between Shell Canada (60%), Chevron Canada Limited (20%) and Marathon Oil Canada Corporation (20%), which consists of Shell Albian Sands mining and extraction operations, north of Fort McMurray, the Scotford Upgrader and the proposed Quest Carbon Capture and Storage (CCS) project located north of Edmonton.

WHY IS SHELL CONTINUING TO DEVELOP THE OIL SANDS?

Containing some 170 billion barrels of oil, Canada's oil sands are one of the most significant and secure oil resources in the world today.

By 2050 energy demand is expected to double. Shell's scenario planners believe that by this point 30% of the world's energy could come from renewable sources. However, even to get to this figure will require a huge global effort. This means that even in 2050, 70% of the world's energy mix will still come from conventional oil and gas, and all sources will need to be developed to meet this demand. That includes Canada's oil sands. **These proven reserves are one of the most significant oil resources remaining and represent a secure, reliable source of energy and economic engine which drives employment, training and business development across Canada and beyond.**

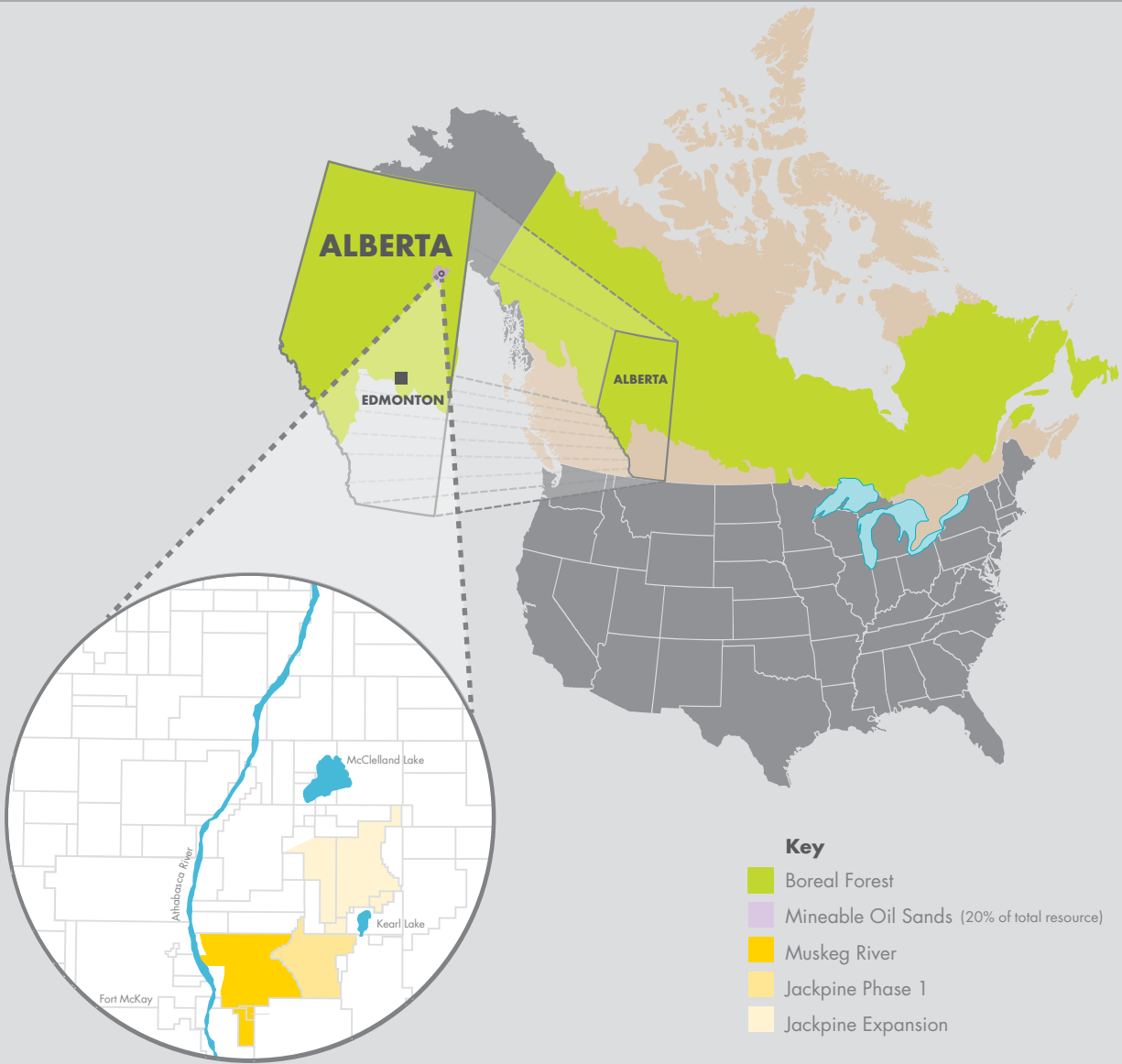
Developing the oil sands must be done responsibly. Oil Sands development is proceeding under comprehensive federal and provincial government regulations that govern all aspects of air, water, land, wildlife and socio-economic impacts to the oil sands region and the wider environment.



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THROUGH SHELL'S PHILOSOPHY OF CONTINUOUS IMPROVEMENT, WE ARE COMMITTED TO DEVELOPING THIS RESOURCE IN A WAY THAT IS BOTH **ENVIRONMENTALLY** AND **SOCIALLY RESPONSIBLE.** ”

Oil sands mining area



KEY FACTS ABOUT THE JACKPINE MINE EXPANSION



50% OF ALL CONSTRUCTION COSTS ARE EXPECTED TO BENEFIT ALBERTA BUSINESSES.

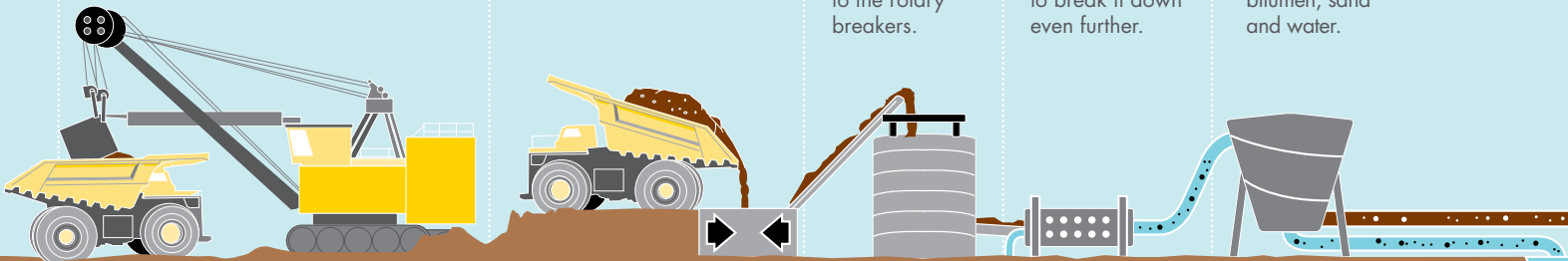
1 Mining shovels dig oil sands ore and load it into large trucks.

2 The trucks take the oil sands ore to crushers where it is broken down.

3 The ore is stored in silos before it is sent to the rotary breakers.

4 The rotary breakers add water to the ore to break it down even further.

5 The primary separation cell separates the bitumen, sand and water.



As well as meeting the important demand for energy, the Jackpine Mine Expansion will also mean capital investment and lifetime royalties and taxes in the tens of billions of dollars over the life of the project.

Production

- The quantity of energy produced from the Jackpine Mine Expansion is equivalent to the quantity of electrical energy consumed in Alberta.
- If it were a country, the Jackpine Mine Expansion would be among the top 60 largest oil producers.



What benefits does the AOSP provide?

- The existing Muskeg River and Jackpine Mines provide significant benefits to the Regional Municipality of Wood Buffalo (RMWB), the Province of Alberta, and Canada as a whole through taxes and royalties.
- Since the start of operations, the AOSP has invested over \$20 billion in Alberta through capital investment.
- Additional billions are spent every year on ongoing operations and maintenance costs.
- The current project employs more than 2,700 staff a year on-site and supports a further 4,600 jobs in Alberta among project suppliers and in the general economy.
- The proposed Jackpine Mine Expansion will build on these activities, generating further benefits, employment and opportunities for the region.



CANADA'S OIL SANDS ARE **ONE OF THE MOST SIGNIFICANT OIL RESOURCES** REMAINING AND REPRESENT A **SECURE, RELIABLE SOURCE OF ENERGY AND ECONOMIC ENGINE** WHICH DRIVES EMPLOYMENT, TRAINING AND BUSINESS DEVELOPMENT ACROSS CANADA AND BEYOND. ”

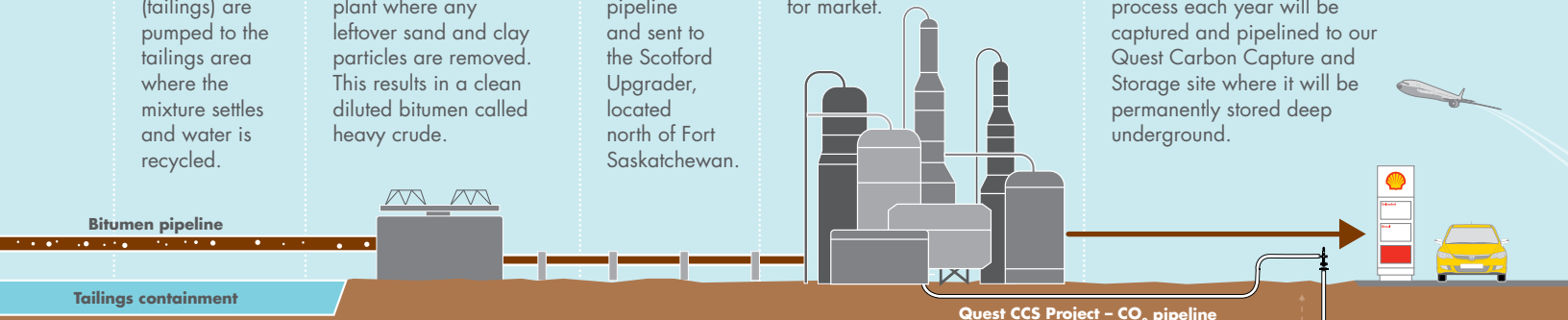
6 The sand and water (tailings) are pumped to the tailings area where the mixture settles and water is recycled.

7 The bitumen is pumped to the froth treatment plant where any leftover sand and clay particles are removed. This results in a clean diluted bitumen called heavy crude.

8 The bitumen is put in a pipeline and sent to the Scotford Upgrader, located north of Fort Saskatchewan.

9 Here it is upgraded and blended into synthetic crudes for market.

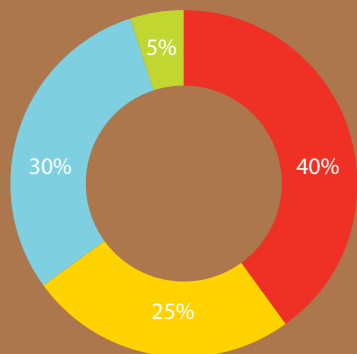
10 One million tonnes of CO₂ produced in the upgrading process each year will be captured and pipelined to our Quest Carbon Capture and Storage site where it will be permanently stored deep underground.



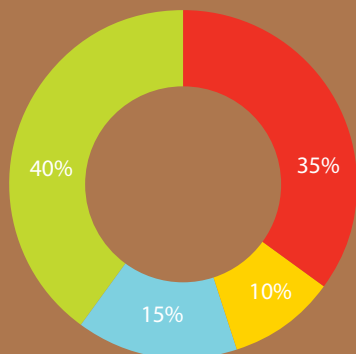
Safety

At Shell, safety is a deeply held value and is our top priority. We do not accept that safety incidents are an inevitable consequence of working. Instead, we believe we can operate with zero fatalities and no substantial incidents that put our facilities at risk or harm employees, contractors or neighbours.

Benefit flow from construction of projects

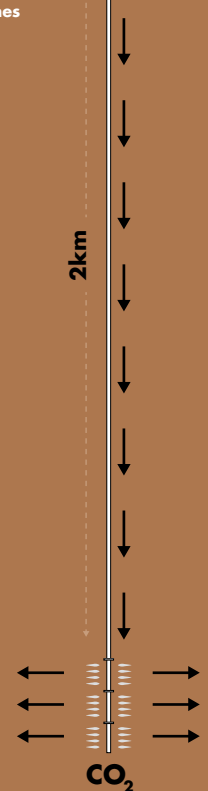


Benefit flow from ongoing operations



Key
 RMWB
 Alberta
 Canada
 Outside Canada

Source: Nichols Applied Management



LEASE DEVELOPMENT

EFFECTIVE MINE PLANNING

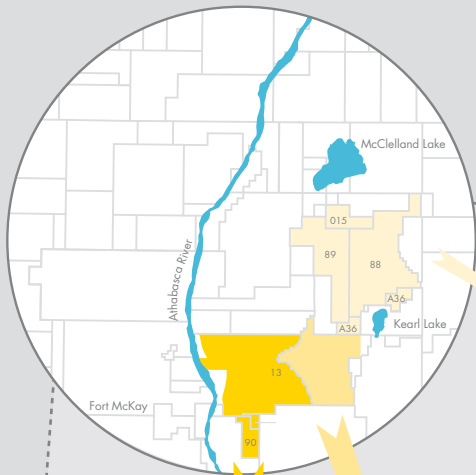
Consolidated, long term mine planning is the best way to ensure the most effective development of the regional oil sands area. To date the AOSP project has sought to utilize its assets to develop its mining areas in a progressive, ordered and productive way. Our Jackpine Mine was an expansion of the original Muskeg River Mine, and many of the assets at the Muskeg River Mine are used for final processing of bitumen before it is transported to the Scoford Upgrader.

The Jackpine Mine Expansion is a natural extension of this strategy. The Expansion will fully utilize the assets we have built at the Jackpine Mine, and ensure we make the most of our existing infrastructure. Very little infrastructure will be built on the main leases which are part of the Expansion application (88 and 89) as we will bring all of our processing facilities together at the current Jackpine Mine. This will maximize efficiencies and lower impact through a robust approach which intergrates our full mine, tailings, water, closure and reclamation plans.

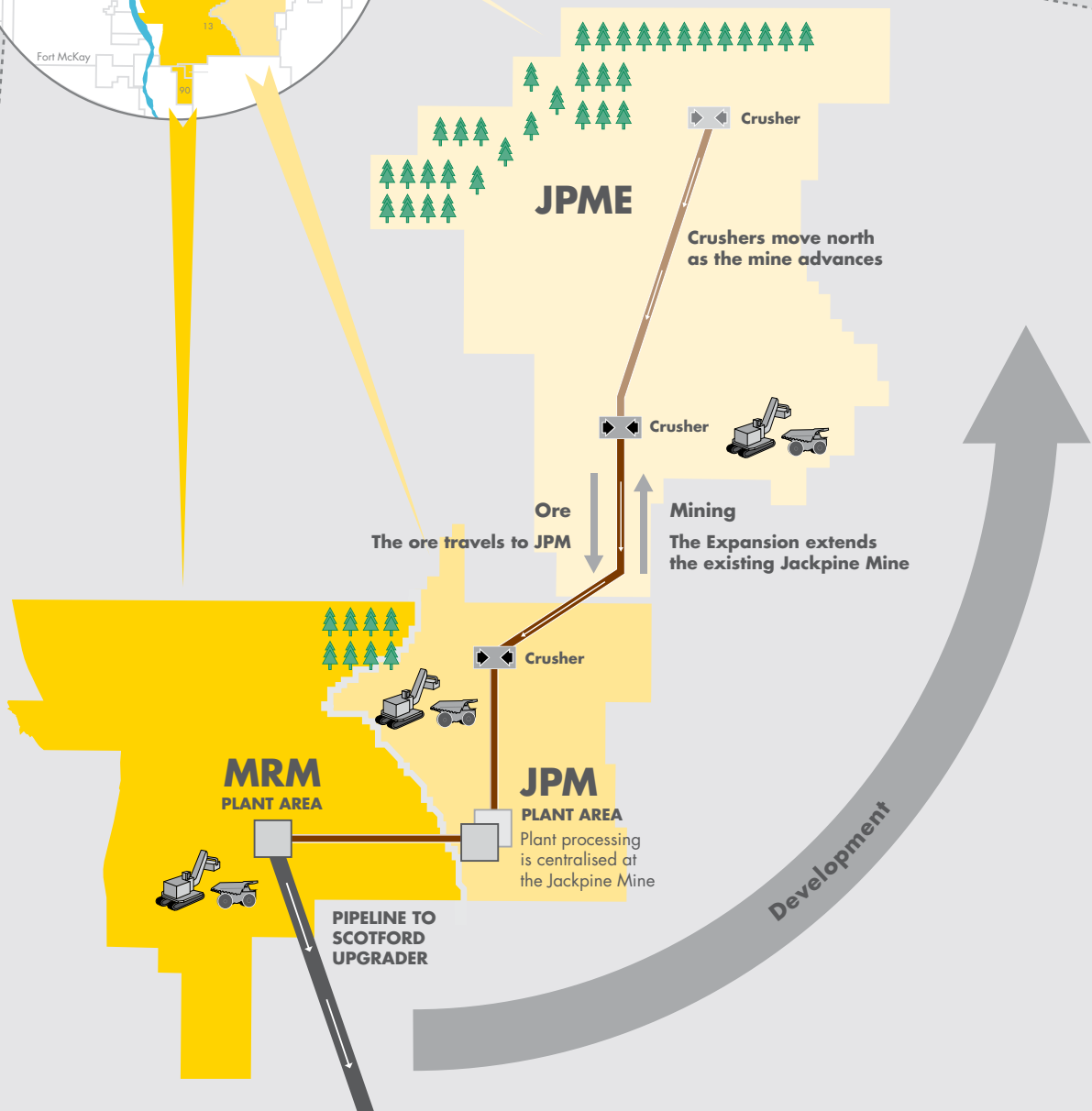


WHEN DISCUSSING OUR DEVELOPMENT PLANS FOR THE REGION WITH STAKEHOLDERS THEY SAID THEY WOULD PREFER TO SEE SHELL'S LARGER DEVELOPMENT PLAN OVER THE LONG TERM, RATHER THAN FREQUENT, SMALLER APPLICATIONS. THIS APPLICATION IS AN IMPORTANT ELEMENT OF OUR LONG TERM PLANS FOR THE REGION WHICH HELPS STAKEHOLDERS UNDERSTAND THE IMPACTS, ENVIRONMENTAL PLANNING AND OVERALL COMMITMENT TO THE REGION FOR THE LONG TERM. ”

Leases Integration: 'Putting the pieces together'



- Jackpine Mine Expansion
- Jackpine Mine
- Muskeg River Mine



ENVIRONMENT

All industrial developments have an environmental impact and the Jackpine Mine Expansion is no exception. However Shell is committed to minimizing our footprint on the landscape wherever possible.

- Shell is the only oil sands operator to have received ISO 14001 accreditation, an international standard for environmental management.
- Shell is an active participant in the voluntary 'Towards Sustainable Mining' (TSM) initiative developed by the Mining Association of Canada. As a member since 2004, Shell subscribes to a set of guiding principles and reports specific performance indicators annually.
- Shell Enhance™ froth treatment is the first commercial application of an innovative technology – which uses higher temperatures to remove impurities more efficiently, reducing emissions at our Jackpine mine.
- We have invested over \$200 million on tailings technology, developing and implementing promising technologies which can dry mature fines in weeks rather than years.
- Advanced energy and heat integration features were designed into the Scotford Upgrader, making Scotford's direct CO₂ intensity best-in-class compared to others in industry.
- Shell recently announced it will build the world's first oil sands Carbon Capture and Storage facility at our Scotford Upgrader, capturing and storing more than 1 million tonnes of CO₂ per year.



In Shell's opinion, the long term success of oil sands development depends not only on our ability to compete economically but also to advance improvements in our environmental performance. We are advancing **environmental strategies** for **greenhouse gas (GHG)**, **water** and **land management** that identify short, medium and long term actions to continue to improve our performance.



WE BELIEVE THE TRANSPARENCY OF OUR OPERATIONS IS CORE TO ENSURING GOVERNMENT, ABORIGINAL GROUPS, REGULATORS AND THE GENERAL PUBLIC CAN SEE OUR COMMITMENT TO SUSTAINABLE DEVELOPMENT. WE PROVIDE AN ANNUAL REPORT OF PERFORMANCE ACROSS ALL AREAS OF OUR OIL SANDS OPERATION. ”

THE JACKPINE MINE EXPANSION AND ENVIRONMENTAL IMPACT ASSESSMENT

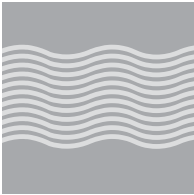
*Oil Sands project applications include an **Environmental Impact Assessment (EIA)** – a highly comprehensive study of the environmental, social and economic implications of our proposed projects.*

The process to develop the EIA for the Jackpine Mine Expansion started in 2005 when a number of studies commenced to gather information on the proposed project area. These studies, which included over 60,000 hours of field work on Shell leases, were used to determine the environmental and social setting for the project. Information was also collected from local stakeholders through our ongoing consultation process, as well as from regional multi-stakeholder groups, provincial and federal governments, and academia to help us understand the different ways in which the Jackpine Mine could impact people in the region and the environment. Using proven practices for impact assessment, the EIA for the Jackpine Mine Expansion was completed for Shell by experts in their respective environmental and social fields.

Following the submission of the regulatory application and EIA for the Jackpine Mine Expansion in December 2007, Shell responded to multiple reviews by local stakeholders, non-government organizations, and both provincial and federal regulators. Over this period, Shell continued to collect and review information from our local stakeholders. Shell also provided additional information in response to regulatory requirements and scientific findings that emerged during the application process. Shell has provided over 20,000 pages of evidence on the potential impacts of the Jackpine Mine Expansion and the mitigations proposed to responsibly manage these impacts.

Following this rigorous regulatory application process, Shell remains confident that there will be no significant environmental or social impacts as a result of the project.





WATER

Shell is requesting an additional Athabasca River water allocation of 18 million cubic metres per year for later periods of the expanded Jackpine Mine life. This request is to ensure the mine has sufficient water in consideration of peak demand periods. In reality we use much less water than our license – in 2011 we were permitted to withdraw 0.6% of the Athabasca River and actually withdrew 0.12%. Shell’s intent will continue to be to use less than the allocation, recycling the majority of our water. During regular operation we recycle about 80% of the water used through our mine. To put the oil sands water use in perspective, it takes more water to produce a pair of jeans than to produce a barrel of bitumen.

Shell will also manage its withdrawals in accordance with the Water Management Framework to ensure ongoing protection of Athabasca River flows.

LAND

Our mine plan includes progressive reclamation – which means as we mine through sections of the site, we start the process of reclamation. This means the total area of disturbed land will never be as large as the project size. The Jackpine Mine Expansion project area is 13,000 hectares of land, an area one seventieth the size of Edmonton, or a size similar to Denver airport. We continue to work on solutions to deliver reclamation of our mine faster, and an integrated plan over leases 88 and 89 would help us to do this.



DRIVING IMPROVEMENTS IN ENVIRONMENTAL PERFORMANCE IS CORE TO SUCCESSFUL DEVELOPMENT OF THE OIL SANDS. **TO THIS END, SHELL HAS BEEN A CORE AND ACTIVE PARTNER IN RECENT INDUSTRY COLLABORATION, AIMED AT ACCELERATING IMPROVEMENTS IN ENVIRONMENTAL PERFORMANCE THROUGH COLLABORATIVE ACTION AND INNOVATION.** ”

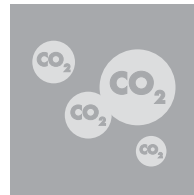


WILDLIFE

Being located in the boreal forest, our operations are in a region with a number of animal interactions. We work to ensure the design and build of our mine sites mitigate against any harm to wildlife.

The tailings pond constructed for the project will include the most technologically advanced bird and wildlife deterrent systems to prevent birds from landing on our ponds. Shell is working to reduce this number to zero.

We have an existing compensation lake which was built at the Jackpine Mine to compensate for fish we have had to move through operational development. It provides a safe and secure environment for both birds and fish. We are proposing a similar compensation area for the expansion.



AIR

We are working hard to try to reduce the CO₂ intensity of our operations. The Expansion will emit 1.2 million tonnes of CO₂ per year, which equates to 0.17% of Canada's overall 2012 emissions, comparable to 2.2% of New York City's 2010 annual emissions. The Expansion will use gas fired cogeneration units and next generation froth treatment, helping to reduce CO₂ emissions from the mine. Emissions from trucks is one of the biggest sources of CO₂ at site – we have committed to purchasing the most efficient truck engines as they become available, which is likely to be earlier than the expansion would come on-line.



WE TAKE THE PUBLIC'S CONCERNS SERIOUSLY. SINCE 2007 WE HAVE DEVELOPED THE JACKPINE MINE EXPANSION APPLICATION THROUGH EXTENSIVE CONSULTATION WITH PEOPLE ACROSS THE REGION AND HAVE SUBMITTED OVER 20,000 PAGES OF INFORMATION AND EVIDENCE IN RESPONSES TO PROVINCIAL, FEDERAL, ABORIGINAL AND PUBLIC REQUESTS FOR SUPPLEMENTARY INFORMATION. THIS IS A HUGE AMOUNT OF SCIENCE AND RESEARCH DATA COVERING ECONOMICS, ENVIRONMENT AND SOCIAL IMPACTS. ”

COMMUNITY

WORKING WITH ABORIGINAL AND LOCAL COMMUNITIES

- A good working relationship with local Aboriginal communities is important to us. We want to ensure our neighbours benefit from investment in the region.
- We have a “Good Neighbour” policy and we work together with communities to ensure we understand their concerns and interests. We address community concerns and interests by delivering activities that create value for the community.
- Since 2006, the AOSP has spent over \$1 billion with Aboriginal contractors, an important demonstration of the efforts we have made to support business development and local contracting opportunities.
- Across Canada, Shell Canada has invested over \$96 million in a wide range of aboriginal and community initiatives, since 2000.
- Over the last two years, the AOSP has invested over \$5 million in a variety of educational organizations and programs in the RMWB – such as the new Father Patrick Mecredi Science and Technology Centre, ACTUA science camps in Fort Chipewyan and Fort McKay, and aboriginal, environmental and technical training programs at Keyano Collage.
- Shell has committed \$1.2 million to the Northern Lights Health Region’s Inner City Homeless Population of Fort McMurray Heath Improvement Project.
- Shell supports many historical preservation initiatives such as the Fort Chipewyan Museum and the Cree Burn Lake Education Project. We also promote the Quarry of Ancestors by partnering with Alberta Culture and Community Spirit to develop educational materials related to the quarry that can be distributed and used in schools in the region.
- On October 20, we announced our largest investment to date in Fort McMurray; a \$2.5 million partnership with MacDonald Island Park for the Stadium and Shared Space Centre..





SINCE 2006, THE AOSP HAS SPENT OVER \$1 BILLION WITH ABORIGINAL CONTRACTORS, AN IMPORTANT DEMONSTRATION OF THE EFFORTS WE HAVE MADE TO SUPPORT BUSINESS DEVELOPMENT AND LOCAL CONTRACTING OPPORTUNITIES. ”



For more information visit

[**www.shell.ca/oilsands**](http://www.shell.ca/oilsands)